

AMENDMENTS TO THE CLAIMS:

The following Listing of Claims replaces all previous claims and listings of claims in the application:

LISTING OF CLAIMS:

1 - 17. (Canceled)

18. (Currently Amended) An electric motor comprising:

one or more laminations of a metallic material forming an outer casing of the electric motor;

one or more circular non-metallic, flat, thermally conductive disks positioned between said laminations for conducting heat generated by an electrical current flowing within the motor through said conductive disks;

an electrically conductive material wound in a plurality of layers within the laminations so as to form an electric field that drives an armature when an electrical current ~~is~~ is applied, thermally conductive strips interleaved between preselected layers of the electrically conductive material, said thermally conductive strip extending outside of the area covered by the electrically conductive material; and

means for conducting heat at the end of the non-metallic thermally conductive disk and the thermally conductive strips thereby cooling the motor.

19. (Previously Presented) A method for cooling electrical devices having layers of electrically conductive material wound on a core comprising the steps of:

placing a non-metallic thermally conductive strip having a first end and a second end, capable of conducting heat from between layers of the electrically conductive material, with said strip extending through at least some of the layers of electrically conductive material wound on the core with both said first end and said second end extending outside of an area covered by the layers of electrically conductive material; and

conducting the heat from the layers of electrically conductive material through the first and second ends of the non metallic thermally conductive material thereby cooling said electrical device.

20. (Previously Presented) A method as in Claim 19, further comprising the step of:

placing the non-metallic thermally conductive strip having a first and second end between a plurality of predetermined laminations of the core, said first and second ends of the non-metallic thermally conductive strip extending outside the core.

21. (Previously Presented) A method for cooling an electrical device having layers of electrically conductive material wound on to a laminated core having a heat generating component comprising the steps of:

placing one or more non-metallic, flat, thermally conductive strips in contact with the heat generating component across its entire length, said thermally conductive strip extending outside of the area covered by the electrically conductive material and core and in physical contact with the electrically conductive material, thereby receiving heat from the electrically conductive material, and

removing heat from a first end and a second end of each of the thermally conductive strips.

22. (Previously Presented) An electric motor, as in Claim 18, further comprising one or more thermocoolers adjacent to and touching the outer casing of the motor to conduct heat from the non-metallic thermally conductive strips and the metallic laminations forming the outer casing of the motor.

23. (Previously Presented) The electric motor of Claim 18, wherein the circular, non-metallic, flat, thermally conductive disk has an anisotropic thermal conductivity.

24. (Previously Presented) The electric motor of Claim 18, wherein the circular, non-metallic, flat, thermally conductive disk comprises a carbon-fiber composite.

25. (Currently Amended) The electric motor of Claim ~~18~~ 24, wherein the carbon-fiber composite conducts heat along the fibers of the carbon-fiber composite.

26. (Previously Presented) The electric motor of Claim 18, wherein the circular, non-metallic, flat, thermally conductive disk comprises a high modulus carbon graphite laminate material.
27. (Currently Amended) The ~~electric~~ electrical motor of Claim 18, wherein the means for removing heat includes a thermally conducting potting compound.
28. (Previously Presented) The electrical motor of Claim 18, wherein the conductive disk is anisotropic.
29. (Currently Amended) The method according to Claim 19, wherein said step of placing a non-metallic thermally conductive strip ~~includes~~ comprises placing a high modulus carbon graphite laminate thermally conductive strip.
30. (Currently Amended) The method according to Claim 19, wherein said step of placing a non-metallic thermally conductive strip ~~includes~~ comprises placing a carbon-fiber composite thermally conductive strip.
31. (Currently Amended) The method according to Claim 19, wherein said step of placing a non-metallic thermally conductive strip ~~includes~~ comprises placing a non-metallic thermally conductive strip having an anisotropic thermal conductivity.
32. (Currently Amended) The method according to Claim 21, wherein said step of placing a non-metallic thermally conductive strip ~~includes~~ comprises placing a high modulus carbon graphite laminate thermally conductive strip.
33. (Currently Amended) The method according to Claim 21, wherein the thermally conductive strip ~~includes~~ comprises a carbon-fiber composite.
34. (Currently Amended) The method according to Claim 21, wherein said step of placing a non-metallic thermally conductive strip ~~includes~~ comprises placing a non-metallic thermally conductive strip having an anisotropic thermal conductivity.

35. (Previously Presented) A method for cooling an electrical device having layers of electrically conductive material wound onto a core and having a heat generating component, the method comprising:

placing one or more non-metallic, flat, thermally conductive strips having an anisotropic thermal conductivity in contact with the heat generating component across an entire length of the heat generating component, said thermally conductive strip extending outside of the area covered by the electrically conductive material and core and in physical contact with the electrically conductive material, thereby receiving heat from the electrically conductive material, and

removing heat from a first end and a second end of each of the thermally conductive strips.

36. (Previously Presented) An electromagnetic device comprising:

a magnetic core;

at least one coil of electrically conductive material for conducting an electrical current therethrough, the coil having a plurality of turns;

at least one non-metallic, thermally conductive strip having anisotropic thermal conductivity, the strip positioned between adjacent turns of the coil for conducting heat generated in the coil away from the device.

37. (Previously Presented) The electromagnetic device of Claim 36, wherein the at least one non-metallic, thermally conductive strip extends beyond a surface of the coil.

38. (Previously Presented) The electromagnetic device of Claim 36, wherein the non-metallic, thermally conductive strip terminates at the surface of the coil or extends beyond a surface of the coil.

39. (Currently Amended) The electromagnetic device of Claim 36, wherein the at least one non-metallic, thermally conductive strip ~~comprising a plurality of non-metallic, thermally conductive strips, each of the thermally conductive strips being is~~

positioned between adjacent turns of the coil, at least one of the strips extending beyond a surface of the coil.

40. (Canceled)

41. (Currently Amended) The electromagnetic device of Claim 36, wherein the at least one non-metallic, thermally conductive strip extends ~~extending~~ beyond a surface of the coil transfers heat to surrounding air.

42. (Previously Presented) The electromagnetic device of Claim 36, wherein the at least one non-metallic, thermally conductive strip extends beyond a surface of the coil transfers heat to a surrounding potting compound.

43. (Previously Presented) The electromagnetic device of Claim 36, wherein the device is a motor.

44. (Previously Presented) The electromagnetic device of Claim 36, wherein the device is a transformer.

45. (Previously Presented) The electromagnetic device of Claim 36 further comprising an armature, wherein an electrical current in the coil forms an electromagnetic field that drives the armature when the electrical current is applied.

46. (Previously Presented) The electromagnetic device of Claim 36, wherein the coil of electrically conductive material is wound on the magnetic core.

47. (Previously Presented) The electromagnetic device of Claim 36, wherein the at least one non-metallic, thermally conductive strip comprises graphite.

48. (Previously Presented) The electromagnetic device of Claim 36, wherein the at least one non-metallic thermally conductive strip comprises fibers having a highest thermal conductivity in a direction along the fibers.

49. (Previously Presented) The electromagnetic device of Claim 36, wherein the non-metallic thermally conductive strip has a greater thermal conductivity than copper.
50. (Previously Presented) The electromagnetic device of Claim 36, wherein the non-metallic thermally conductive strip has a thermal conductivity similar to copper or less than copper.
51. (Previously Presented) The electromagnetic device of Claim 36, wherein the at least one non-metallic, thermally conductive strip includes a high modulus carbon graphite laminate.
52. (Previously Presented) The electromagnetic device of Claim 36, wherein the at least one non-metallic, thermally conductive strip includes carbon graphite laminate.
53. (Previously Presented) The electromagnetic device of Claim 36, wherein the non-metallic thermally conductive strip is flat.
54. (Previously Presented) The electromagnetic device of Claim 36, wherein the non-metallic thermally conductive strips are non-magnetic.
55. (Previously Presented) The electromagnetic device of Claim 36, wherein the non-metallic thermally conductive strip is not affected by Eddy currents.
56. (Previously Presented) The electromagnetic device of Claim 36, wherein the non-metallic thermally conductive strip is less electrically conductive and more thermally conductive than aluminum.
57. (Previously Presented) The electromagnetic device of Claim 36, further comprising a base plate heat sink, the non-metallic thermally conductive strips conducting heat from the coil to the base plate heat sink.